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ABSTRACT

This paper offers suggestions for state systems change activities to enhance the assistive technology (AT) workforce funded under the Technology-Related Assistance for Individuals with Disabilities Act of 1988. Nationally, the Rehabilitation Engineering and Assistive Technology Society of North America AT has begun to credential AT practitioners and suppliers from various disciplines. A number of states have conducted statewide surveys to identify AT personnel needs. North Dakota's Interagency Project for Assistive Technology is highlighted. Strategies for addressing the widespread shortages of AT personnel include: increase recruitment, increase diversity, grow your own professionals, improve quality, and increase demand. All states are urged to collect data on the existing workforce. Included are the 11 core questions asked of allied health personnel employers in a North Carolina survey. (DB)

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ENHANCING THE ASSISTIVE TECHNOLOGY WORKFORCE STATE BY STATE

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ENHANCING THE ASSISTIVE TECHNOLOGY WORKFORCE STATE BY STATE

People who have disabilities can often be empowered by the use of assistive technology (AT). Through using AT, they may be able to live more independently and participate more fully in their communities. AT service providers are key professionals who can assist people with disabilities to identify, acquire, and use AT. Without their having access to qualified professionals and facilities, it becomes difficult, if not impossible, for people with disabilities to be evaluated properly to determine which AT device is most appropriate for them. It may also become difficult for them to get AT modified or adapted to fit individual needs, or to obtain training to use their AT more effectively.

The systems change activities of the projects funded under the Technology-Related Assistance for Individuals with Disabilities Act of 1988 (Tech Act) have increased the demand for AT and, in turn, the need for personnel to provide AT services. Many states are experiencing AT personnel shortages, particularly in rural and remote areas. When shortages become quantified, then states can begin to identify strategies to fill those personnel gaps.

Current Workforce

Nationally. AT service providers represent a number of disciplines, including physical therapists, occupational therapists, special educators, speech-language pathologists, rehabilitation engineers, rehabilitation counselors, and many others. All of those providers have a specialized knowledge of the use of AT within their respective disciplines. Many providers have licenses from their states and professional certifications from their professional associations to practice therapy, counseling, or engineering. However, there is no definitive count of the number of those providers who specialize in AT within their professional discipline.

RESNA has begun to credential the assistive technology practitioners (ATPs) and assistive technology suppliers (ATSs). RESNA maintains a list of these professionals, and the RESNA credential is awarded to professionals who demonstrate a basic level of expertise in AT knowledge and skills. Currently, approximately 900 people are credentialed ATPs and ATSs across the country. Because the RESNA credential is new, this number does not reflect the entire national workforce of qualified AT professionals.

State Tech Act projects have been active in encouraging the AT service providers in their states to sit for the RESNA exam and to become credentialed so that individuals with disabilities can readily identify qualified AT service providers. State Tech Act projects have also hosted professional development "fundamentals" courses to aid AT service providers in reviewing the breadth of the AT areas.

Statewide Surveys. Most state Tech Act projects have attempted to collect data on the service providers in their state. Those surveys were usually conducted when the projects were newly established, and the surveys were intended to identify barriers to AT access for people with disabilities, as well as to identify training topics for service providers.

A few states have conducted other surveys targeting workforce supply and demand issues. For example, North Dakota's Interagency Project for Assistive

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Technology (IPAT) conducted a statewide survey to identify AT assessment providers and their locations. IPAT contacted all the evaluation centers in the state and found that 21 of them provided some type of AT assessment. The project gathered data through telephone interviews documenting the types of AT assessments (e.g., power mobility, computer access, and environmental control) conducted at the centers, the kinds of equipment available during the assessments, the personnel who conducted the assessments, and the training received by assessment providers. The project divided the state into four regions and analyzed the data by region and by type of AT assessment.

IPAT found that only five evaluation centers provided comprehensive AT assessments. None were located in the northwest region of the state. No rehabilitation engineers or professionals were degreed as AT specialists in the state. Only seven of the identified evaluators were noted as "having advanced training in their assessment areas."

Strategies to Address Workforce Shortages

Workforce dynamics of supply, demand, and need can be manipulated through the actions of all parties involved in the workforce. State entities, institutions of higher education, and professional associations can all work to reduce shortages and to change the parameters of the workforce. How workforce shortages have been addressed in other disciplines can offer models for reducing shortages of AT personnel.

Increase Recruitment. Shortages can be addressed by recruiting more people into a specific profession or specialty area. The American Physical Therapy Association (APTA) analyzed the practice placements of its graduates from preservice training and noticed a shortage of physical therapists (PTs) working in school settings. APTA knew that new graduates tended to continue to work in the area in which they practiced during their preservice fieldwork experience. Because the number of school-based practica was limited, APTA concluded that the lack of field experience in

TERMS ASSOCIATED WITH MANPOWER ISSUES

Some specialized terms with distinct definitions to use when talking about workforce issues include *supply*, *demand*, *need*, and *personnel shortage*.

Supply. The supply of AT service providers is the number of qualified providers who are currently working in the field of assistive technology or who are looking for work in the field. The supply increases as new college graduates enter the workplace. Supply decreases as service providers retire or change fields.

Demand. The demand for AT service providers is based on the number of actual positions that exist and that are funded—either filled or vacant. If vacancies are filled with less than fully qualified personnel, then those individuals are candidates for professional development activities that would increase or enhance their skills.

Need. Need is the number of service providers required to provide adequate AT services to all who wish them. This number is larger than the number for demand, because it includes all funded positions as well as those positions for which it would be nice to have funding. Thus, while a state may wish to have 20 AT service providers (need), it may actually have the funds to support only 15 positions (demand).

Personnel Shortage. When either the demand or the need exceeds the supply, then there is a personnel shortage. For example, if a state needs 40 AT service providers and has 30 positions funded but has only 20 AT service providers in the state, then it has a personnel shortage. The state has a shortage of 10 providers, according to demand, or 20 providers, according to need.

schools contributed to the shortage of PTs in schools. After encouraging the college and university preservice programs to increase the number of opportunities for school-based practica, APTA found that the number of PTs working in schools increased.

Increase Diversity. Some university engineering programs have worked to increase the cultural diversity of their professionals by emphasizing the recruitment of minority students. Those programs have used the successful strategy of recruiting minority students as freshmen in high school. Ninth graders interested in engineering are invited to attend summer science camps at the colleges. The recruited high school students become interested in the profession and acquire allegiance to the specific colleges. Participation in the summer programs often allows the high school students to earn credit toward tuition, so that a student who attends four summers has enough tuition credit to offset four years worth of tuition. Some programs guarantee admission to the college for participating high schoolers.

Grow Your Own Professionals. Shortages can be addressed by "growing your own" professional for a specific position or location. Idaho found it had a shortage of speech-language pathologists (SLPs) working in school systems in certain rural areas of the state. When hired for those rural areas, SLPs often left after a short time for other, more-populated areas. It was also determined that the number of students preparing to be SLPs in the state was too small to fill the schools' needs. The Department of Speech Pathology and Audiology at Idaho State University, the only university with an SLP preparation program in the state, responded by developing a special program to address the shortage.

First, the department worked to increase the number of SLP students in the state. It received funding from the state legislature to increase the number of SLP faculty members in the department and to increase the capacity of the practica sites. Those increases allowed more students to be accepted into the program. In exchange, the SLP program agreed to admit fewer out-of-state students, ensuring that state funds were preparing state residents.

To address the shortage in rural areas, the department worked with the school systems to identify regular education and special education teachers who were recommended by their principals and who were interested in a career change and in becoming SLPs. To ensure retention, the department selected teachers who tended to be long-term residents of the area and who were likely to remain so (e.g., land-bound, spouse of farmer). The school system agreed to employ the teacher as an SLP after graduation from the program. The selected teachers admitted into the SLP program were required to complete the same course work as other SLP students. However, some of the university courses were provided at satellite campuses so the students would not have to travel long distances.

In Florida, the Polk County School District collaborated with the University of South Florida to reduce the District's special education teacher shortage by recruiting special education paraprofessionals to become special educators with college degrees. Although the University of South Florida was located two hours away, it instituted an itinerant faculty program that provided faculty members from the university who traveled to the Polk County area and taught courses to the paraprofessionals. The paraprofessionals were good candidates to become special education teachers because they were interested in the field and were experienced in working in a classroom with students who have disabilities. Thus, the paraprofessionals were likely to remain in the field.

Improve Quality. To increase the AT knowledge and skills of educators in the state, the Missouri Assistive Technology Project participated in developing a set of competencies that all special education teachers must meet to retain their teaching license. A number of AT competencies were included in the set. Depending on the teacher's specialty area, those competencies ranged from a broad-based generic understanding of AT—sufficient to support appropriate consideration of

CORE QUESTIONS FROM NORTH CAROLINA COUNCIL FOR ALLIED HEALTH SURVEY ASKED OF ALLIED HEALTH PERSONNEL EMPLOYERS

1. What is the total number of full-time and part-time employees on the payroll? How many of those are full-time (35 hours or more)? How many are part-time (less than 35 hours)? For each of the allied health categories, how many of the positions are filled through contract services?

2. What is the exact hourly rate salary for full-time employees for each of the personnel categories? For part-time employees? What is the minimum and maximum for each?

3. What is the number of full-time and part-time staff positions vacant that are actively being recruited in each of the categories?

4. What is the average length of time it takes to fill a vacant full-time position in each of the categories? The length of time to fill a part-time position?

5. What five personnel categories have been most difficult for the facility to recruit or retain during the year?

6. Listed by allied health category, what are strategies that the facility is implementing to reduce shortages? For example, use career mobility, changes in compensation programs, contract services, foreign recruitment, incentive pay benefit, innovative scheduling, on-call pool staff, overtime, restructuring jobs, scholarships or forgivable loans, sign-up bonus, student employment, or temporary staff.

7. What are the greatest deterrents to successful recruitment in the institution? For example, use salary, facility location, working conditions, lack of available candidates, competition for personnel, licensure or other restrictions affecting utilization, professional relationships, or lack of career advancement opportunities.

8. To what extent does the facility use extenders as a strategy to respond to personnel shortages? (An extender is a person who performs tasks that require a limited skill level and technical knowledge under the direction of a licensed or certified practitioner. Not included are established aide and assistant categories such as pharmacy technician or occupational therapy assistant.)

9. To what extent does the facility use multiskilled health practitioners as a strategy to respond to personnel shortages? To flexibility and efficiency in utilization of staff? To cost effectiveness achieved through increasing the number of skills performed while ultimately reducing the number of employees?

10. What description best describes the overall changes in personnel shortages during the past year for the institution? Increase in shortages, shortages remained the same, or shortages decreased?

11. What was the most successful action taken by the institution during the past year to address personnel shortages?

AT in a student's individualized education program—to an expert knowledge level within specific AT and disability areas.

Increase Demand. Results of the North Dakota Tech Act Project's workforce survey revealed few paid positions in the AT field. The project members realized that state agencies did not include AT in their comprehensive plans, so the project participants developed a guidebook for administrators on how to incorporate AT into agency plans. The guidebook has been a popular publication and has been effective in building AT into state plans.

First Step

The first step to understanding a personnel shortage is to collect data on the existing workforce. North Carolina conducted a survey in 1993 of allied health professionals in the state and repeated it in 1995 and 1997. The surveys were designed by the Council for Allied Health in North Carolina, an organization composed of employers, educators, and allied health practitioners in the state. The latest survey was sent to 1,529 health care facilities across 10 employer group settings. The Council collected data on the number of full- and part-time staff members employed in their respective facilities and included their jobs related to 43 specific categories as allied health and other health care practitioners (e.g., radiation technologist, medical records technician, physical therapist, occupational therapist, etc.). Other data collected included salary rates, vacancy rates, length of time to recruit and fill vacancies, personnel categories most difficult to recruit, recruitment strategies, and recruitment deterrents.

From the data, the Council has been able to document critical shortages in specific personnel categories and to suggest strategies to address the shortages, such as making changes in the compensation program, using innovative scheduling, and using contract services. The Council has also identified some recruitment deterrents, such as the lack of available candidates, the facility location (rural versus urban), the lack of advancement opportunities, and the licensure restrictions.

Data collection and analysis from the surveys provided the state with information to use in making decisions and formulating policies. For example, th identification of critical shortages in various allied health professions provided the North Carolina legislators with the data needed to approve authorization of $3 million for university programs to increase the number of students enrolled in specific entry-level programs that address allied health.

Because data have now been collected over a four-year period, trend lines have been developed and the Council has been able to identify significant changes in the supply and employment of allied health personnel across the state and by regions within the state. Now the Council is looking at conducting more concentrated workforce studies over shorter periods of time (six months) so that it can react more quickly to resolve workforce issues.

Summary

What can state assistive technology projects do to address AT workforce issues?

1. Gather data on AT providers in the state to identify gaps; determine where shortages exist and why they exist.
2. Collaborate with institutions of higher education and with state public agencies to determine how best to combine state resources to address AT workforce issues.

What are some actions states might take?

3. "Grow their own" professionals by finding personnel to be trained to fill specific service gaps in underserved areas such as remote and rural areas.
4. Increase the overall quality of AT professionals in the state by expanding professional development opportunities.
5. Encourage the licensing and certification of AT service providers.
6. Increase the demand for AT professionals by fostering agency comprehensive planning that facilitates the inclusion of positions in agency personnel requirements.

Resources

Longhurst, T. M., & Sorensen, D. N. (November 1995). Retaining career-shift teachers into speech-language pathologists. *The Supervisor's Forum 2*, 71–76.

Describes the grow-your-own program at Idaho State University to reduce personnel shortages in the state. Available from Dr. Tom Longhurst, Idaho State University, Pocatello, ID 83209-8116.

North Dakota Interagency Program for Assistive Technology. (1995). *A survey of assistive technology assessment providers within North Dakota.* Cavalier, ND: Author.

Describes how the North Dakota IPAT surveyed AT assessment providers. Details the purpose of the survey, tells how it was conducted, and provides an analysis of the data both for the entire state and broken down by region. Includes the survey form. Cost: $3 shipping and handling. Available from AT Info-Line, St. Alexius Medical Center, 800 East Broadway, Box 5510, Bismark, ND 58502-5510, Attn: Karen Pearson, telephone 1-888-214-2780.

North Dakota Interagency Program for Assistive Technology. (1998). *Technology for all: A guide to solving the puzzle.* Cavalier, ND: Author.

This popular guidebook offers a step-by-step process to aid agency planning to incorporate assistive technology. Includes plan elements for administrative support, for professional growth, for meeting an individual's unique needs, for outcome measures, and much more. Shows how to fit the pieces together. Cost: $10 plus $4 shipping and handling. Available from AT Info-Line, St. Alexius Medical Center, 800 East Broadway, Box 5510, Bismark, ND 58502-5510, Attn: Karen Pearson, telephone 1-888-214-2780.

Thorpe, R. (Ed.). (1998). *Final report of the 1997 comprehensive survey of human resources.* Chapel Hill, NC: Data Committee, The Council for Allied Health in North Carolina.

Details the findings of the third comprehensive study for the state of selected allied health and other health care personnel so data can be used in analyzing trends and planning for personnel in North Carolina. Separate Executive Summary available. Includes survey forms and transmittal letters that were sent to the various facilities. For more information, contact Robert Thorpe, Data Subcommittee, Department of Medical Allied Health Professions, School of Medicine, Wing E, CB#7120, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-7120.

This bulletin is available upon request in alternative formats. For information, contact 703-524-6686 (voice), 703-524-6639 (TDD).

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